How much rain does a "rain event" make?

Posted by Josh Willis
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Josh Willis
How much rain does a "rain event" make?
May 14, 2021 09:42PM
Registered: 6 years ago
Posts: 134

So as we all keep an eye on the weather forecast this spring and get our sprays in when we can, even the best planning means a spray sometimes is followed by rain. So when, specifically, do folks respray (or not respray) after a rain?

I imagine a few variables in play:

-What's being sprayed? For simplicity's sake, let's focus on Michael's standard holistic spray.

-How long does the spray need to take optimal effect? I'm guessing this depends on the mechanism we're aiming for: neem oil as a smothering spray for insects, or neem as insecticide via azadiracthin, or neem as fatty lipid health booster, or other liquid nutrition (seaweed extract, seacrop, etc.), and/or our bacteria friends setting up shop. I'm sure I'm missing some others -- and I imagine each mechanism has a different timeline involved.

-And most obviously - how much rain???

I'm hoping the experienced vets of this forum have a simpler estimate. Is there a rough # of inches of rain that you consider an over-under for respraying? i.e., "under 1/4" is fine, over 1/4" you should respray." And/or is there an amount of time that you consider part of the equation? i.e., "if you get 24 hours of clear weather or <1/4" rain after a spray, you are probably fine."

Thanks in advance for any clarification!

Earthworks
Zone 7a in West-Central MD
Non-commercial, ~100 fruit trees, dwarf to MM106
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Brittany Kordick
Re: How much rain does a "rain event" make?
May 16, 2021 03:02PM
Registered: 4 years ago
Posts: 211

Hi Josh,

Prior to going the holistic route, when we were primarily spraying all the "conventional" OMRI-approved products we could afford, we were used to living and dying by the rain, calling reps and scrutinizing labels to check rain-fast times, and like you, had lots of questions about how rain plays into holistic sprays that are by nature more cumulative and long-term in focus. With apologies to Michael for not even attempting to paraphrase him, but in the hopes that reprinting his detailed written answer to our own query will prevent his having to weigh in from scratch, below is his advice to us.

To it, I would only add that, when putting out a big EM-1 colonization spray, say the first one of the year, when we usually have more wiggle room anyway, we take extra care to make sure that it's going out in ideal conditions (sunshine for a couple to few days, not freezing temps), so that we feel good about the microbes getting established, and we can simply focus on building from there. And with regard to neem oil specifically, whether we're spraying TerraNeem in hopes of getting some more pesticidal action from the higher azadirachtin concentration, or pure neem oil for fatty acid benefits, we don't worry much about rain afterwards since oil won't just wash off like other materials. And a lot of what we're applying, whether comprised of beneficial bacteria, micronutrients, oils, etc, we don't necessarily mind it getting run off into the soil, where it can often do as much good as if it stayed put in the canopy. All that said, our ideal spray scenario for a holistic mix is warm (but not 80 plus degree) conditions, light wind, overcast to partly sunny (since we're using an airblast sprayer, I prefer conditions that favor lingering wetness), and at least two days of sunshine subsequent. But there are plenty of times when the conditions don't favor in some or all of those regards for part or all of a spray, and because the cumulative benefits are what we're going for, we spray anyway. This is about to come into play for us in a big way since it's summertime in the South and unless you're spraying at night, it's 80 degrees for most of the daylight hours. We have a lot less wiggle room this time of year, and if rain's coming, most of the time, so be it, and popup thunderstorms will catch us by surprise all the time. Of course, if you're adding specific action mixers such as Bt or Venerate or Agriphage (bacteriophages are not particularly mobile, and if they are washed off a surface, are not going to just climb back up into the tree to destroy *Erwinia*) into your holistic cocktail spray, definitely pay attention to the label, because some commercial products may have

rain-fast considerations. Anyway . . .

Kordick Family Farm: We are used to living and dying by rainfall because the products we applied in the past often required reapplication after a significant rain event. With the holistic sprays, I don't anticipate this being an issue (yay!). But just to make sure, are there any instances when you feel reapplication is necessary (ridiculously heavy rain)? I see in your Holistic Spray Framework that you refer to tighter spray frequency in regards to more frequent wetting periods, so what are you worried about washing off specifically (or is it simply because disease potential is higher during wet periods)? I know you may apply in response to specific events (I'm thinking of hail storms or other times of extreme stress and/or disease pressure) in addition to your usual scheduled sprays, but I'm just asking about reapplication of a scheduled spray in response to, say, a normal 1/4 to 1 inch of rain, or beyond.

Michael Phillips: I consider a holistic app to be both systemic and "lodged" with respect to microbes establishing an arboreal food web with food resources (fatty acids) on hand. This in turn leads to a more substantial appreciation of "foliar feeding" as an ongoing paradigm. I probably told you this already: the goal with a holistic app is a day if not two of sunshine for photosynthesis to be able to prime systemic immune response as well as microbe populations to further populate. A heavy rain is not going to wash this off the way it does sulfur, etc. Plus fats have staying power, especially in context of the nooks and crannies of the waxy cuticle. The reason you see a tightening of spray frequencies in the fruit sizing window is because so many thing happen then, or as you say "disease potential is higher" in this period. This statement reflects what I have observed with haphazard Brix readings:

Effectiveness of holistic application in the field stretches as long as 10 days (to as much as 14 days in greenhouse trials)

I do tighten up reapplication yet again as you can see with petal fall and first cover apps. Coming out of bloom is a tenuous time and I want to be sure microbes are up to snuff. And while on the bloom period, do note the CCB (completive colonization boost) might be applied for two purposes: fire blight conditions on subsequent blossoms and an extended but cool start to bloom where a scab event then comes into play before petal fall. Here's a past scenario in response to your mother of all rains event defined as an inch or more. This is the one time I trialed the sulfur card since going cold-turkey holistic: One block got the petal fall app, the other went with sulfur because of predicted mega-wetting. The 'old me' knew to renew sulfur about two days into the rainy period because there had been two inches of downpour. But this was a trial: pure holistic versus the preemptive sulfur approach. Scab got far more established in the second block. The sulfur could have done its job with a renewal app but one on one, holistic was impressive. (This is fast typing, free-form, so hope I'm making sense enough.) I agree: There's more freedom in holistic understanding but you still need to heed to frequency aspects.

Kordick Family Farm
Westfield, NC
Zone 7a

Edited 2 time(s). Last edit at 05/16/2021 03:08PM by Brittany Kordick.
Reply Quote
Josh Willis
Re: How much rain does a "rain event" make?
May 31, 2021 07:44PM
Registered: 6 years ago
Posts: 134

Thank you, Brittany, for the detailed answer! (And thanks to Michael for his response to you). That all makes sense to me.

If you don't mind, your answers made me think of 2 further questions (in the name of truly nuanced sprays!).

You mention waiting for <80ºF, which I've often had in the back of my head, also. However, last year when I queried the folks at Neem Resource, they emphasized that direct UV was the much more important consideration re: leaf burn and neem breakdown...thus it being better to spray in early AM / late PM twilight hours. It made me wonder if that <80ºF was a vestige of more conventional sprays in my memory. So I'm curious - why are you looking for (ideally) <80ºF spray conditions?

Also, I realized the flipside of my original question is: what's the minimum wait after rain to spray? i.e., do we want trees to be dry, or does that not matter? Here's an example: just last week, I looked at the forecast on my phone, and saw a window for spraying that early evening. I did a wonderful job ignoring the obvious clouds on the horizon. By the time I mixed the spray, my phone was then calling for severe T'storms over the next few hours. I ended up spraying at around 10pm that night, after the T'storms had passed, so as not to waste the spray (I think it's an ~8 hour window after mixing). The trees were all still soaked from rain while I sprayed; I told myself it was just a little more dilution to the mix...but not really sure.

Thanks again!

Earthworks
Zone 7a in West-Central MD
Non-commercial, ~100 fruit trees, dwarf to MM106
Reply Quote
Brittany Kordick
Re: How much rain does a "rain event" make?
June 01, 2021 01:03AM
Registered: 4 years ago
Posts: 211

Well put with regard to your statement that, "It made me wonder if that <80ºF was a vestige of more conventional sprays in my memory." I would go with Neem Resource and pay closer attention to UV conditions, as this is probably a much more accurate barometer of when to spray and when not to spray neem oil specifically, and yes, the old 80 degrees test is a more conventional guide. For us, 80 degrees has always just been a useful guideline with regards to spraying oils of any ilk, but we do take it with a grain of salt. For example, if you're going with this model, I don't think the second you hit 80 degrees, oil suddenly becomes a problem, as opposed to spraying when it's 78 degrees. Likewise, if I'm using this model and have 30 minutes of application time to go to finish a spray, sure, I'm going to keep spraying if it's 82 degrees. For me, it's more of a feeling rather than scientific measurement of conditions. I might decide not to spray when it's 75 degrees and my own body feels like the sunlight is particularly intense, or I can feel that temperatures are rising particularly fast and I expect temps or UV radiation to spike soon after I finish spraying neem oil. But if I see that the forecast is for 85 degrees high, I know going in, hey, get out there in the morning, and back out in the late evening; this is not an ideal spray day (not that we have all that many of them within our growing season)

I go with my gut a lot, not being a particularly scientific person (that's what my partner, my mother, is for), and this holds true with regard to your leaf wetness question. Every spray situation and scenario is really different. How desperate are we to get a spray on? I'm leaving the country in a few days, and in my mind, I don't have much of a choice but to spray before I go, whether conditions are ideal are not. I'll be gone for two weeks, and I'll have a ton to do immediately when I get back. What are we expecting disease pressure-wise? If I feel a compelling need to get a spray on, depending on the components, I may spray in higher than ideal winds.

Others who are more scientifically minded can chime in here with arguments for and against spraying when leaves are wet, but for me, I FEEL that conditions are most ideal early in the morning when there's a slight moisture to the leaves, allowing for some fairly passive movement on the leaves (not soaked with dripping rain that's going to comingle with my spray mix and keep dripping off before my EM-1 bacteria, for example, has a second to get oriented and sort of anchored in the canopy). But if I had compelling reason to do so, I would not hesitate to spray in a light rain situation or immediately post-rain; I've done so plenty of times in my career. But it wouldn't be my first choice. It all depends on what's in the mix, too. A general holistic mix of neem oil, EM-1, minerals, etc. isn't something I mind washing into the soil a bit, as long as it's not every spray. A once or twice a season Entrust spray would be a different story. But then again, if I was experiencing some specifically high pest pressure, and circumstances dictated that I must spray now in light rain or wait a week, well, I might think differently.

Hope that helps,
Brittany

Kordick Family Farm
Westfield, NC
Zone 7a

Edited 1 time(s). Last edit at 06/01/2021 01:11AM by Brittany Kordick.
Reply Quote

Ian Graham
Re: How much rain does a "rain event" make?
June 03, 2021 05:53PM

Registered: 10 years ago
Posts: 59

JUst want to add here that this thread was quite helpful, substantive, thanks to Josh for getting the both before and after angle.
I'm working up the learnign curve, still pondering if it's time to do a HS, and rain is on the radar next 24hrs, do I wait or go?
Like blackjack!

Old 99 Farm and permaculture site
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